

**Amendment and Response**

Applicant: Guilin Ma et al.

Serial No.: 10/618,317

Filed: July 11, 2003

Docket No.: 10020800-1

Title: OPTICAL CONDUIT FOR CHANNELING LIGHT ONTO A SURFACE

---

**IN THE CLAIMS**

Please cancel claims 2, 9-11, and 14 without prejudice.

Please amend claims 1, 3-8, 12, and 13 as follows:

1. (Currently Amended) An optical conduit for illuminating a surface, comprising:  
a body formed from optically transmissive material, having:  
an input end for light input;  
an output end for light output; and  
a curved surface that totally and internally reflects light from the input end  
towards the output end; and  
a light source embedded at the input end of the body, such that light is channeled from  
the input end through the body and emitted out the output end; and  
a reflector cup embedded at the input end of the body and surrounding the light  
source, the reflector cup configured to redirect light from the light source towards the output  
end of the body.
2. (Cancel)
3. (Currently Amended) The optical conduit as in claim 21, wherein the curved surface  
of the body is a paraboloid.
4. (Currently Amended) The optical conduit as in claim 21, wherein the body is made  
up of sections of curved surfaces fitting different equations.
5. (Currently Amended) The optical conduit as in claim 21, wherein the light source is a  
light-emitting diode.
6. (Currently Amended) The optical conduit as in claim 21, wherein the body has a  
gradual bend so that the output end is at an angle to the input end, wherein the angle is at  
most 90°.

**Amendment and Response**

Applicant: Guilin Ma et al.

Serial No.: 10/618,317

Filed: July 11, 2003

Docket No.: 10020800-1

Title: OPTICAL CONDUIT FOR CHANNELING LIGHT ONTO A SURFACE

---

7. (Currently Amended) The optical conduit as in claim 21, wherein the optically transmissive material is chosen from acrylic, polycarbonate, and optical grade plastic.
8. (Currently Amended) An optical mouse, comprising:
  - a housing;
  - an image sensor within the housing for capturing images of a surface;
  - ~~a light source within the housing;~~
  - an optical conduit made from optically transmissive material, channeling light from the light source onto the surface, having:
    - an input end for light input;
    - an output end for light output; and
    - a curved interior surface that totally and internally reflects light from the input ends towards the ouput end; and
    - a light source embedded within the input end of the optical conduit;
    - a reflector cup embedded within the input end of the optical conduit and surrounding the light source, the reflector cup configured to redirect light from the light source towards the output end of the optical conduit; and
    - a lens to focus light reflecting off of the surface onto the image sensor.
9. (Cancel)
10. (Cancel)
11. (Cancel)
12. (Currently Amended) The optical mouse as in claim 118, wherein the curved surface of the body is a paraboloid.
13. (Currently Amended) An optical mouse, comprising:
  - a housing;

**Amendment and Response**

Applicant: Guilin Ma et al.

Serial No.: 10/618,317

Filed: July 11, 2003

Docket No.: 10020800-1

**Title: OPTICAL CONDUIT FOR CHANNELING LIGHT ONTO A SURFACE**

an image sensor within the housing for capturing images of a surface;  
an optical conduit within the housing made from optically transmissive material, the  
optical conduit having:

an input end for light input;  
an output end for light output; and  
an interior surface that totally and internally reflects light from the input ends  
towards the output end;  
a light source embedded within the input end of the optical conduit; and  
a reflector cup embedded within the input end of the optical conduit and surrounding  
the light source, the reflector cup configured to redirect light from the light source towards  
the output end of the optical conduit; and  
a lens within the housing to focus light reflecting off of the surface onto the image  
sensor.

14. (Cancel)